part, extending from the second to the sixth rib in front, and involving the seventh, eighth, and ninth ribs behind. On removal of the thoracic wall the whole of the left pleura was found to be tubercular to a high degree. The left lung was phthisical, and no larger than a man's fist, and was firmly adherent at the level of the first rib. The pleura was vigorously scraped with a sharp spoon and the cavity was stuffed with iodoform gauze. The affected lung was partly covered by a pedunculated skin-flap taken from the thorax; this was arranged in such a manner that treatment could still be applied to the diseased organ if this subsequently became necessary. A month later the left pleura was again thoroughly scraped, and was then converted into a cutaneous cavity by transplantations of skin according to Thiersch's method. The left lung steadily diminished in size, and the tubercles of which it was the seat underwent a process of spontaneous cure in consequence of cicatricial contraction.

The subsequent course of this patient has been most gratifying. He attends to business, has gained in weight, and presents the appearance of robust health. The collapsed left lung can be felt in the upper part of the left thorax at the level of the first rib. The right lung is absolutely healthy. The left pleura is a skin cavity the size of a man's fist and is covered with epidermis. On deep inspiration the anterior mediastinum is arched to the left. The movements of the heart can be seen and felt. Tillmanns recommends that in similar severe cases of unilateral tuberculosis of the pleura and lung the same procedure should be adopted. That is, the seat of disease should be exposed sufficiently for local surgical treatment by free resection of the chest-wall in front or behind. In suitable cases a temporary resection may be recommended. A pedunculated section of skin and bone may be turned back; afterward, when the disease of the left lung and pleura is cured, the thoracic flaps can be replaced in their normal position. In the case reported the anterior wall was entirely removed. This would not have been done except that it was extensively involved in the tubercular disease.

This case is particularly important, when it is recalled that Hofmokel, in an article entitled "Clinical Contributions to the Surgery of the Pleura and the Lung," states that all the tubercular cases (twelve in number) treated by surgical intervention perished, and that abstention should be recommended in these cases.

OTOLOGY.

UNDER THE CHARGE OF

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MENTHOL IN THE TREATMENT OF FURUNCULOSIS OF THE AUDITORY CANAL.

CHOLEWA, of Berlin, likens the pathogenic condition of primary furunculosis of the external ear to a culture of microörganisms. He therefore recommends the use of a twenty per cent. solution of menthol on a dossil of cotton pushed into the affected ear canal. This application at first causes some burning, which, however, soon disappears. This application may remain in position twenty-four hours, when it may be renewed, this plan being followed out until the cure is effected. If suppuration ensue, the abscess must be opened, and the menthol treatment continued. This treatment is based on the discovery of Koch, that a solution of menthol, 1 : 2000, will destroy the cholera bacillus, while a solution of 1 : 33,000 inhibits the development of the bacillus of splenic fever.

REGENERATION AND CICATRIZATION OF THE MEMBRANA TYMPANI.

RUMLER contributes an interesting article on this subject in the *Archiv für Ohrenheilkunde*, vol. xxx., May, 1890, Parts 1 and 2. His conclusions are as follows:

1. In the closure of a perforation in the drum-membrane, the epithelium of the outer surface takes the initiative, the first manifestations of cell multiplication occurring in the course of six hours.
2. In the course of forty-eight hours the epithelium of the mucous membrane participates in this activity, but does not play an important part at any time.
3. From the third day the growth of connective tissue becomes prominent, and completes the final closure.
4. The membrana propria takes very little, if any, part in the process of healing.

The article is illustrated by several beautiful and explanatory micro-engravings.

FATAL BLOW ON THE EAR.

HEIMAN, of Warsaw, narrates the case of a young man, twenty-one years old, who, while feeling unwell and weak, received a blow with the hand on the left side of his face. He at once felt vertigo, and ceased work, and it is said that there was bleeding from the ear which lasted two days. He had never had headache, but pus was said to have come sometimes from the left ear. An examination made two days later showed dulness, clouded intellect, difficulty in moving the tongue, vertigo and nausea upon moving; temperature 40.5° C.; pulse 120, quick and small. Dried blood was found on the auricle, and in the auditory canal a moderate quantity of bloody and purulent secretion. The membrana tympani was reddened, and a small perforation was detected in the antero-inferior quadrant. Conduction of sound by the cranial bones was maintained on both sides. There was considerable swelling of the spleen, and tenderness in the ileo-cæcal region. There soon ensued paralysis of the abductors on the left side, dilatation of the pupils, and ptosis, with icterus, tenderness, swelling, and suppuration in the left carpo-radial joint. Unconsciousness and delirium set in, attended with involuntary urination and defecation, and in eight days from the time of receiving the blow, the patient died.

Post-mortem examination revealed pachy-meningitis interna purulenta diffusa; small, numerous sub-arachnoidal extravasations of blood; hyperæmia of the meninges and brain substance, with lepto-meningitis basilaris circumscripta. A yellowish thrombus was found in the superior longitudinal sinus, and a dark-red one in the transverse sinus and in the internal jugular vein. Chronic middle-ear suppuration, with carious destruction within the mastoid process, and three small openings in the tegmen tympani, were discovered. Furthermore, there were found purulent inflammation of the left carpo-radial joint, incipient exudative purulent pleuritis, metastatic infarct in the lower lobe of the right lung, parenchymatous hepatitis and nephritis; acute swelling of the spleen, and catarrhal enteritis, with very numerous extravasations of blood in the mucous membrane. It is of forensic interest to bear in mind that the fatal result of the disease in this case would have happened very soon even if no blow had been received on the diseased ear. The blow at most could only have hastened the development of the fatal process in the middle ear and temporal bone. (Blair, *Archiv für Ohrenheilkunde*, vol. xxx., May, 1890.)

THE MASTOID PROCESS AND ITS ARTIFICIAL PERFORATION BY CHISELLING.

A. RICORD having investigated the description of the mastoid and its cells, as well as the details of the operation of opening this part of the petrous bone, as set forth by classical French writers, corrects the errors which he has found therein, and sets forth the plans he considers best for artificially opening this part of the temporal bone (*Gazette des Hôpitaux*, February 23, 1890; also review of same in *Archiv für Ohrenheilkunde*, Bd. xxx., May, 1890). He concludes that the posterior half of the mastoid is the dangerous part, because of its proximity to the sinus, while the anterior portion is not only less dangerous, but is also the only part which usually contains the cells which communicate with the drum-cavity. He maintains that the mastoid cells, or the petro-mastoid cells as he prefers to call them, are not a special group of cells, but simply an appendix or a prolongation of the cellular structures of the petrous bone. These are always present, whereas the true mastoid cells vary greatly in development, not only in different individuals but in the two bones in the same person. The study of the development of the air-containing structures of the ear shows that in the newborn child they are first formed about the drum-cavity in the petrous bone, and later in the mastoid process. This is demonstrated by twenty engravings.

The artificial opening of the mastoid is then considered. The method advocated by Poinsot was to operate at a point 1–1½ cm. behind the auricle on a level with the upper wall of the auditory canal, while Delaissement advised penetrating the process near its point. Ricord, however, basing his action on his anatomical investigations, recommends operating on the anterior part of the mastoid, like Politzer, Duplay, and others. He makes an incision through the skin on or near the line of attachment of the auricle, and throws the latter forward so as to expose the anterior surface of the mastoid. If the auricular artery is severed in this act, and cannot be ligated alone, the entire thickness of the flap may be caught by forceps and left thus for some hours (Tillaux). He rejects the trepan, but adheres to the hollow chisel. The bone should not be penetrated further than 12–15 mm., so as to avoid the danger of wounding the facial nerve or the inner ear, especially the semicircular canals.

SARCOMA OF THE DRUM-CAVITY AND THE MASTOID PROCESS.

R. HAUG, of Munich, reports the following case of sarcoma of the drum-cavity and the mastoid process. (*Archiv für Ohrenheilkunde*, vol. xxx., May, 1890.) The patient, a woman, eighteen years old, states that she had whooping-cough at three years of age. From that time she suffered with otorrhœa of an intermittent character from the left ear. At eight years of age she contracted scarlet fever, when the ear grew worse. The hearing appeared to have been not much affected. Hemorrhages from the ear had never occurred. The beginning of the later aural disease is attributed by the patient to her own action in picking the ear with a hair-pin, immediately after which the ear began to bleed. Soon after a tumor appeared in the inner part of the auditory canal, which was said to be visible to the patient's family, but which was not apparently seen at that time by the physician in attendance. About a week later, however, the physician in charge saw a whitish tumor and removed it with forceps. In four weeks it had grown again, so as to lead to the same method of removal again. In February, 1889, the tumor was removed a third time, in the same way; and in May of the same year, the tumor was operated upon in the same way a fourth time. Each operation was followed by a more intense growth, and the hemorrhages became greater, and the tendency to bleed very marked, hemorrhage being induced by the least irritation of the diseased parts. As long as the growth was limited to the auditory canal the pain was slight, but as soon as it extended outside of the canal the pains increased in intensity. By the beginning of the following May, besides glandular enlargement beneath the lower jaw, a very painful tumor in the mastoid region made its appearance, from which in the course of a few days, after the skin had broken, without suppuration, however, there projected spongy masses of tumor, which bled upon the slightest irritation, and in twelve days had nearly reached the size of a pigeon's egg. Small pieces of the same kind of tumor came from the mouth and nose upon several occasions.

In April, 1889, the hearing in the right ear was normal; in the left, loud noises were heard about one metre. From the left external auditory canal there projected a tumor the size of a walnut, of livid hue, and of soft, spongy consistence, entirely unconnected with the auditory canal or the auricle. There came from it the characteristic odor of necrotic tumor. Two tumors of similar size were behind the auricle in the mastoid region. The mastoid region presented the only part sensitive to pressure. There was some enlargement of the submaxillary glands. The eyelid could be normally closed, and there were no symptoms of facial paralysis. The slightest touch of the tumor produced profuse hemorrhage, for which reason the morbid growth was sprinkled with a powder composed of sabina and alum.

An anæsthetic having been given, the morbid growth was removed as far as possible, by means of a sharp spoon, from the tympanic cavity and the mastoid cells, the latter's pneumatic spaces being found broken down and converted into several large irregular cavities. The hemorrhage, which was considerable, was checked, at least in the antrum, by means of the thermo-cautery, and then all the cavities were packed with iodoform gauze, which checked all further bleeding. There were no meningitic or nervous symptoms, and the patient left the hospital in a few days in good subjective condition. There were no pains, nor any signs of regrowth of the tumor for five weeks. In the sixth week after the operation the tumor began to grow again; two months later had attained a larger growth than ever, and the patient began to emaciate. Facial paralysis now appeared, and three months after the operation the patient died of meningitis. The entire process, from the discovery of the first growth, lasted eleven months.

THE TEMPORAL BONE IN A CASE OF SO-CALLED MÉNIÈRE DISEASE.

LANNOIS had the opportunity of examining the temporal bones of a patient who died of Bright's disease, and who had previously suffered from the peculiar symptoms of aural vertigo, or so-called Ménière's disease (*Société des Sciences Méd. de Lyon*, November, 1888; *Lyon Medical*, No. 1, January, 1889; *Archiv f. Ohrenheilkunde*, vol. xxx., 1890).

In one of the bones there was a distinct ankylosis of the anterior crus of the stapes, so that its posterior part could sink into the oval window, but not the entire bone. Further, there was ankylosis of the entire chain of bones with one another, and the head of the malleus was adherent to the walls of the drum-cavity by means of fibrous bonds, so that the entire chain of auditory ossicles was held stiff. The microscope revealed a normal cochlea, excepting a small decrease in the nerve-fibrillæ in the lamina spiralis. In the other ear there was a similar change in the stirrup and oval window. The membrane of the round window was hard, dry, and only slightly movable. The labyrinth appeared normal in all its parts. On the strength of these anatomical changes, the author feels justified in concluding that *Ménière symptoms are not always the result of disease of the labyrinth*, a view we have long held and proclaimed.

FOREIGN BODY IN THE EAR.

SCHUBERT, of Nuremberg, reports a case of foreign body in the ear, unskilfully managed by a physician, which finally terminated fatally from the irritation set up by the rough endeavors to remove it. (*Archiv f. Ohrenheilkunde*, vol. xxx. p. 50, May, 1890.)

A little girl, five and a half years old, was brought to Schubert's clinic with a bean in her right ear, where it had been four days, and which the family physician had tried in vain repeatedly to remove with instruments. There was a copious muco-purulent discharge from the ear, and the auditory canal was swollen, so that the foreign body could be seen with difficulty in the fundus of the ear. As there were grave symptoms, the treatment was limited to antiseptic syringing and antiphlogosis, without touching the foreign body with any instrument. On the fourth day after she was first seen and treated, as stated above, the mother appeared alone, and stated that the child had been attacked with opisthotonos and severe fever, and that she had determined to remove her to their home in another town.

All warnings and persuasions failed to induce the mother to consent to an operation for the removal of the foreign body from the ear. She removed the child from the aural clinic, and nothing more was heard of the case for some months, when it was learned that the child, after lying six weeks in bed, at last died with abscesses in the left arm and left hemiplegia. The foreign substance was in the right ear.

PERFORATION OF THE MEMBRANA FLACCIDA; CHRONIC SUPPURATION OF THE ATTIC.

SCHUBERT, of Nuremberg, gives the history of some of these important cases seen and treated by him. (*Archiv für Ohrenheilkunde*, vol. xxx. p. 52, May, 1890.)

With increasing experience the conviction is now firm that the majority of these cases can be cured only by operating on the diseased malleus or other diseased bone tissue in the attic. Within the last five years Schubert has observed nineteen cases of perforation in Schrapnell's membrane (membrana flaccida). The result in four of these is unknown, because the patients withdrew from observation. In all the cases daily injections with delicate curved metallic tubes were made into the diseased space above the short process. Also granulations were sawed off as they appeared. Narrow perforations were enlarged, injections were even made through the Eustachian tube into the drum-cavity. In four cases this could not control the suppuration; in two cases mastoid disease set in; the mastoid process had to be trephined or perforated. In two cases the diseased malleus was excised, *and these were permanently and promptly cured.* In eleven other cases, after many months of painful and exhausting treatment, the purulent cavity became dry, no granulations appeared, and the visible portion of the little cavity appeared cicatrized, or to have a smooth, epithelial surface. In the major part of these cases, however—that is, in six of them—a relapse occurred in from nine months to two years, because there had been no radical cure of the disease, as there would have been by excision. The author is, therefore, entirely opposed to the irrigation treatment so highly prized by Gompertz, among others. Relapses are the rule when an apparent cure is obtained by any other means than excision—an experience common to the aurist of longest practice.

The removal of the carious hammer is in accordance with general surgical principles.

That such an operation does not injure the functions of the ear is shown by some cases detailed by Schubert; in one before the operation the watch was heard 5 cm.; Politzer's acoumeter 1.20 metre; and whispered words ½–1 metre. A week after the operation the watch was heard 10 cm.; the acoumeter 2.50 metre; and whispered numerals 4 metres. In one month after the operation the perforation in the membrana was nearly closed.

In another case, in which there was a detectable caries in the neck of the malleus, the hearing before the operation was 10 cm. for the watch: loud words 1–2 metres. In six weeks after the operation the perforation in the membrana tympani was healed, and all traces of a discharge were gone. The watch was heard 13 cm.; loud words ½–1 metres, some words being heard 2 metres. In two months later, no secretion, loud words 5 metres; whispers 1 metre and plus; many words heard as far as 5 metres.

These are remarkable results in a disease incurable in our experience until we resorted to excision, and invariably attended with profound deafness, very offensive discharge, attacks of pain from blocking of the suppuration back in the attic cavity, and a paramount risk of an extension of the chronic inflammation in the drum-cavity to the meninges of the brain, as long as the carious bonelet is in the tympanic cavity.

PROGRESSIVE DEAFNESS (SCLEROSIS) AND ITS TREATMENT BY TENOTOMY OF THE TENSOR TYMPANI.

CHOLEWA, of Berlin, like Kessel, of Prague, has recently revived this operation, suggested twenty years ago by Weber-Liel, then of Berlin, now of Bonn. (*Archives of Otology*, vol. xix., April–July, 1890.)

While Cholewa was making some tuning-fork experiments last spring, he concluded that "the very best that could be done in those cases of sclerosis of the tympanum with a relatively good bone-conduction" was the above-named operation, for he deemed it probable that this might "improve the function of the intra-tympanic and muscular apparatus for the perception of sound, words, and speech." His subsequent operations in this way have confirmed these views.

In progressive deafness there are two characteristics (Kessel and others), viz.: 1, Great resistance in the mechanical apparatus, "mechanical deafness;" 2, organic alterations in the nervous terminal apparatus, "nervous deafness."

In most cases of sclerosis the bone-conduction of the tuning-fork vibrations is equally reduced in both ears. Active perception in both ears is greater than the bone-conduction.

Cholewa also claims to have first pointed out that in neuropathic sclerosis there is a "pronounced anæsthesia of the membrana tympani," as shown by touching it with a probe, and that the worse ear offers the greater anæsthesia. Also that the better the hearing the less anæsthetic the membrana, and the more the aërial and bone-conduction of sound have suffered, the more marked and the more extensive the anæsthesia of the entire drum-head. "Hence, for the very reason that the objective examination almost always leaves us entirely at sea, this symptom of 'equivalent anæsthesia' is to be highly recommended as one of the chief diagnostic points in the diagnosis of neuropathic sclerosis."

Then follow notes of thirty operations of tenotomy of the tensor tympani, with five failures. The operations of Cholewa, Weber-Liel, and Kessel show that "when the operation was done on the ear that had previously been shown to be the worse of the two (tuning-fork tests), with probable ankylosis of the ossicle, and was of no benefit at all to that ear, nevertheless the hearing of the other ear was decidedly improved."

It is also maintained by the author of the article that tenotomy of the tensor tympani, as asserted by Weber-Liel and Kessel, may be very beneficial in many cases of apparently hopeless deafness. Although the best results are obtained when the chronic catarrh of the middle ear has not advanced too far, nevertheless it is of use even in advanced cases, as it relieves tinnitus and improves the hearing.

In so-called "neuropathic sclerosis" the operation should be performed when bone- and aërial conduction have not fallen too low. At least one-quarter of the normal duration of perception of the tuning-fork by aërial conduction should be present in a case to be operated upon.

The operation should be done on the worse ear when we have reason to suspect permanent obstructions to conduction to this ear, whilst there are no traces of such change in the better ear.

"If one ear is totally deaf, and the other is growing deaf, the operation is advisable on the latter, on the ground that the reduction of the tension in one side of the muscular apparatus will benefit that of the other."

All that is claimed for tenotomy of the tensor tympani by Cholewa is also claimed by others for excision of the membrana and the malleus, as the latter operation includes the former, and there can be no reunion of the tendon after the removal of the malleus.

DERMATOLOGY.

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Therapeutic Notes.

Compound chrysarobin ointment, used chiefly in psoriasis, is, according to Unna's formula (*Monatshefte für prak. Derm.*, Bd. x. No. 1), composed of chrysarobin 5 parts, salicylic acid 2 parts, ichthyol 5 parts, and vaseline 88 parts.

Aristol ointment (*Brit. Journ. of Derm.*, June, 1890) is recommended by Eichoff: aristol 3 to 10 parts, vaseline 30 parts. It is said to be not less efficacious than chrysarobin in psoriasis, and to have the advantage over the latter that it does not stain the skin or irritate.

Bougard's paste, a powerful escharotic, useful in epithelial cancer, is composed of wheat flour 60, starch 60, arsenic 1, cinnabar 5, sal ammoniac 5, corrosive sublimate 0.50, solution of chloride of zinc 2.45. The first six ingredients are to be separately ground and pulverized, and then mixed together in a glass mortar. The zinc solution is then to be slowly added, while the contents of the mortar are kept rapidly moving by means of a pestle.—*Brit. Journ. of Derm.*, June, 1890.